

# Highlights

## 2001 Year in Review

### International Events and Trends

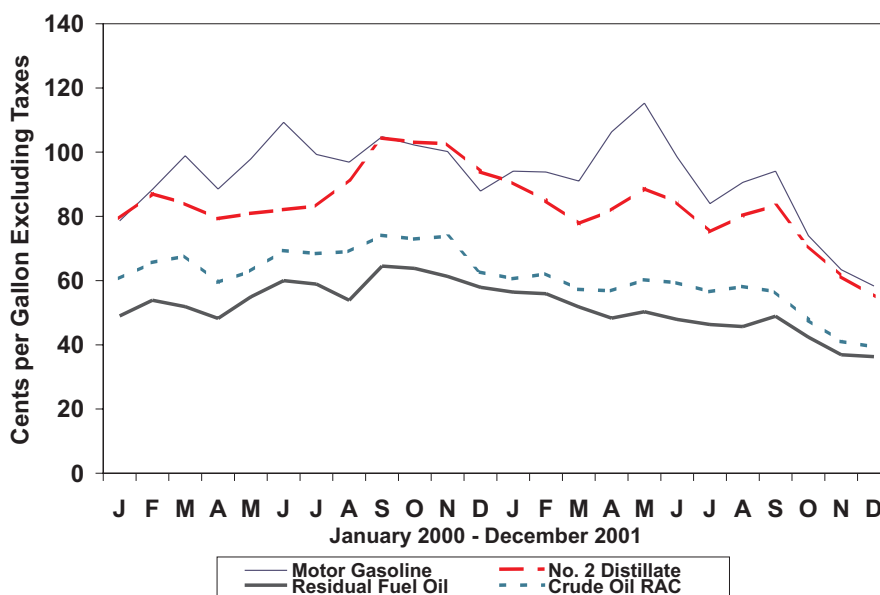
During 2001, international crude oil prices retreated from the long-term highs seen in 2000. The slowing economic recovery in world markets, particularly in critical markets like the United States, fostered the change in trend.

Prices began the year on an upward path in January, driven by the Organization of Petroleum Exporting Countries (OPEC) decision to cut production by 1.5 million barrels per day, effective February 1. The move was prompted by the group's concern that prices remain in a \$22- to \$28-per-barrel range when demand typically declines following the winter season in the Northern Hemisphere. Substantial refinery use paired with falling crude oil stocks in the United States also underpinned prices. Additionally, uneven crude oil exports from Iraq in preceding months provided support to higher prices. However, in February prices began to fall due to lower demand stemming from routine refinery maintenance in North America and run cuts in European refining centers.

Growing talk of a general downturn in international economies also affected prices. Comments made before a U.S. Senate committee by Federal Reserve Chairman Alan Greenspan on February 13, in which he said the United States faced a potentially major economic slowdown, had a noticeable impact on oil prices in markets across the world. Substantiating the perception of flagging economic development, revised petroleum market fore-

casts depicted global demand for crude oil in 2001 to be lower than previously expected. In addition to other sources, the U.S. Energy Information Administration (EIA) revised its estimates for growth in oil demand during 2001 down from 2.5 percent to 1.7 percent. Reduced demand caused by ongoing refinery maintenance and run cuts in Atlantic Basin markets continued to lead prices downward during March. The lower refinery utilization rate increased the availability of crude oil, dampening prices. Following a March 17 meeting, OPEC announced its decision to cut wellhead production by another 1 million barrels per day (4 percent), effective April 1. Nevertheless, this latest effort to stem the erosion in prices had only a moderate and short-lived impact on prices.

**Figure HL1. Crude Oil and Petroleum Product**



Sources: Energy Information Administration. Crude oil refiner acquisition cost: Form EIA-14, "Refiners' Monthly Cost Report"; petroleum product prices: Form EIA-782A, "Refiners'/Gas Plant Operators' Monthly Petroleum Product Sales Report."

Oil prices reversed their downward trend at the beginning of the second quarter of the year, although lingering concern about the impact of slowing world economies on oil demand remained a factor and imparted a low-level dampening effect on prices throughout the period. Prices rose moderately during April, due in part to fast-growing gasoline prices in the United States, the largest consumer of petroleum products in the world. To a lesser extent, rising demand for crude oil in the U.S., as scheduled refinery maintenance wound down, helped support crude oil prices in international markets. During the latter half of April, prices were bolstered by reports that OPEC was not inclined to increase production quotas during its quarterly meeting in June. The rather shallow but ongoing upward track in prices continued in May, when a number of political and fundamental industry factors underpinned prices. North Sea field maintenance, low stock levels of refined products in Atlantic Basin markets, the approaching OPEC meeting, and political friction in the Middle East all contributed to a rise in crude oil values. By the end of the month, refined product prices in European and Asian markets, and to a lesser extent in the United States, had failed to keep pace with crude oil prices, cutting deeply into refining margins. The constriction in margins raised concern about possible run cuts and a subsequent decline in demand in some refining centers. Yielding to that pressure and to robust stocks of petroleum products, prices fell in June. Crude oil prices rose slightly during the initial part of the month after Iraq suspended exports in protest over proposed revisions to the terms of the "oil-for-food" program administered by the United Nations. On June 5, OPEC announced it would maintain current production levels, delaying a decision to adjust the rates for the absence of Iraqi crude oil in world markets until the beginning of July. However, prices gave way to pressure from solid stock levels and shrinking refining margins in key markets.

Crude oil values became more volatile in the third quarter of the year. Prices rose following an OPEC vote on July 3 to maintain the group's production level at 24.2 million barrels per day. The increase was supported by the release of the U.S. Energy Information Administration's Short-Term Energy Outlook report. The report forecast crude oil supply and demand to move more into balance in coming months. Weekly supply reports showing decreases in U.S. crude oil stocks also underpinned prices. Despite those factors, prices began to decrease during the second week of the month. The combination of a num-

ber of issues including Iraq accepting the terms of Phase 10 of the "oil-for-food" program and its speedy resumption of exports, downward revisions to oil demand forecasts, and rising stock levels of crude oil and finished products in major markets fueled the decline. On July 25, OPEC decided to reduce production by 1.0 million barrels per day beginning September 1, in another attempt to stem falling prices. Due in part to that decision, prices moved moderately higher for a period lasting through the beginning of August, then moved within a limited range during the rest of the month. Declining inventories of crude oil and finished products, especially in the United States, also helped drive the increase and sustain price levels. Additionally, continuing political conflict in the Middle East lent some support to prices. U.S. and British warplanes bombed targets in Iraq following attacks on coalition aircraft patrolling no-fly zones, and more violent conflicts between Israelis and Palestinians added to the air of conflict in the region. However, general economic issues and their effect on oil demand continued to play a role in price trends, tempering the influence of falling stocks and lower wellhead production. During the last month of the quarter, those concerns, in combination with the terrorist attacks in the United States on September 11, led international crude oil prices sharply lower in September. Prices experienced a period of increase at the beginning of the month as reports indicated tightening supplies of oil in major markets. In the days immediately following the attacks, oil prices rose on fears of more attacks and the possibility of disruptions to supply points and delivery systems. By mid-month, prices began an acute decline as attention shifted to further indications of deteriorating economic conditions across international markets. While the outlook for crude oil and refined products demand appeared anemic before the attacks, forecasts showed even more enervated prospects for demand in coming months.

The predictions for deterioration in demand for crude oil and other petroleum products were realized almost immediately during the last quarter of the year. Political events, including the start of U.S. bombing raids in Afghanistan on October 7, caused brief price fluctuations, but not substantive changes. Of more consequence, the lack of a firm decision by OPEC regarding wellhead production cuts weakened support for prices and diminished the group's ability to moderate oil prices. By the end of the month, major non-OPEC oil producers publicized their own production agendas. Mexico announced a 1.71 million-barrel-per-day increase in production,

while Norway signaled it would not cut production in the near future. Prices continued to wane in November, reaching some of their lowest levels in more than two years. Again, unfavorable economic conditions, slow demand, and high inventories of crude oil and refined products fostered the decline across international markets. Over the course of the two months, market attention focused on discussions between OPEC and other major producer states regarding production and export levels. During a meeting on November 14, OPEC members agreed to cut production by another 1.5 million barrels per day beginning January 1, 2002 contingent on major non-OPEC producers cutting production 500,000 barrels per day. The intended outcome of the agreement was to provide a foundation for prices to grow through a reduction in supply levels. Mexico and Norway expressed willingness to make significant cuts provided Russia trimmed more than the negligible 30,000 to 50,000 barrels per day it initially offered. By the close of November, they had not settled the issue. The price slump continued through the beginning of December as the participants involved in the negotiations continued to work toward an agreement that was amenable to all parties. By mid-month Russia, Norway, Mexico, Oman, and Angola had pledged to reduce output by a total of 462,500 barrels per day. On December 28, OPEC officially announced its output reduction of 1.5 million barrels per day for a six-month period beginning January 1, 2002.

## U.S. Markets

Prices for crude oil and refined products in the United States proved to be unsettled during 2001. The year began with prices in a volatile mode as concerns about supply levels and production rates influenced their direction. Crude oil values rose through most of January, mainly due to the OPEC decision to cut production. No. 2 distillate prices, which had started the year at high levels because of a cold snap in December and below-average stock levels, began to drop as foreign cargoes arrived along with warmer temperatures. Notably, residual fuel oil prices experienced less decline than other products' prices. Because of the imbalance in natural gas supply and demand, plant operators substituted residual fuel oil products for power generation purposes, thus providing firm support for residual fuel oil prices. Further, low-sulfur diesel fuel prices in Gulf Coast and Midwestern markets experienced marked increases because of reduced production, due in large part to soaring natural gas prices.

Natural gas is used in desulfurization processes of refined products.

Scheduled refinery maintenance, in addition to shortages of MTBE, also affected gasoline prices. Combined with concern about inventory levels just before the usual annual phase of gasoline stockbuilding, shortages of the blending component commonly used in the production of reformulated gasoline (RFG) drove gasoline prices higher and cut refining margins. Nevertheless, crude oil and finished product prices were on the decline in most regions of the country by February. Rising stock levels and warmer temperatures across the country, especially in the critical Northeastern market, caused No. 2 heating oil prices to decline sharply throughout the month. Crude oil prices were less volatile as increases in stocks were reported throughout the month. Gasoline prices eased in most markets as stocks grew, in part because of slow demand. However, in California, prices for cleaner burning gasoline (CBG) soared throughout the month. The combination of bringing refining facilities back online from scheduled maintenance and unexpected outages at others drove prices higher.

In March, supply concerns and continuing pipeline and refinery maintenance, in combination with the switch from a focus on manufacturing heating fuels to producing gasoline for the coming summer driving season affected refined product prices across regional markets. Gasoline stocks, which had been at below-average levels since autumn 2000, continued to fall during March. At the U.S. level, data for March show gasoline stocks were more than 7 percent below the March 2000 level. Notably, March 2000 stocks were approximately 6 percent lower than March 1999 levels. Despite subsiding interest in heating fuels, No. 2 distillate prices became more animated toward the end of March due to upcoming spring agricultural demand and demand for power generation purposes during the coming summer season.

At the start of the second quarter of the year, inventory levels, refinery activity, and demand remained the principal issues affecting crude oil and finished product prices. April stock reports showed crude oil inventories rising and moving firmly into the normal range and affected prices accordingly. The supply increase subdued the effect of issues such as a threatened strike by Venezuelan oil workers and the OPEC production cut that took effect at the beginning of the month. Conversely, lean stockpiles of gasoline—particularly low stocks of RFG—spurred prices sharply higher throughout regional markets. Although the refinery utilization rate rose throughout the month, some refineries that

had undergone scheduled maintenance experienced delays restarting production units, which supported price increases. Further, unanticipated refinery outages due to mishaps at several facilities affected gasoline prices, particularly in California. Concern about refinery problems and stock levels continued in May, causing prices to remain high throughout the month. While crude oil and distillate prices crept up steadily, gasoline prices were quite volatile. Gasoline prices dropped considerably across the country during the first few weeks of the month as stock reports showed growth in supply levels. However, refinery problems at several Gulf Coast and mid-continent facilities and rumors of maintenance at an East Coast refinery slated for June caused gasoline prices to rise sharply at mid-month. Concern about a reported decline in supplies and production of RFG intensified the increase. By the close of the month, prices had declined again as refinery production rose and solid import rates eased worries about gasoline supplies during the coming summer months. By June, prices were firmly in decline. While Tropical Storm Allison hindered off-loadings of crude oil at the Louisiana Offshore Oil Port during the first week of June, the inclement weather had a negligible effect on crude oil prices. Despite disruptions to refinery operations caused by the storm, gasoline prices underwent appreciable declines due to growing supplies of the product, particularly in the Gulf Coast and Northeast regions of the country. Conversely, distillate stock levels were low for this time of year, making products from this cut of the barrel more profitable to produce. By the latter part of the month, some refiners were curtailing gasoline production and expanding distillate production.

Market conditions in July were absent the kind of profound fundamental issues affecting prices seen during the first half of the year. Supplies of refined products were well within average ranges for this time of year, and correspondingly, price trends displayed less volatility than seen in previous months. Accounts of both planned and unplanned maintenance at a number of refining facilities supported prices to a degree, but did not provide the impetus to alter the generally downward trend in market prices. However, in August crude oil and refined product prices rose in markets throughout the country amid a spate of refinery outages and declines in product stock levels. Some of the most dramatic activity took place in the Midwest, where refinery problems caused gasoline prices to soar. A fire at Citgo's Lemont, Illinois facility caused gasoline prices to surge in Midwestern markets during the second half

of the month. Concern that shortages of reformulated gasoline, required for use in the Chicago and Milwaukee metropolitan areas, would exacerbate existing high prices led the U.S. Environmental Protection Agency (EPA) to grant Citgo a temporary exemption relaxing some of the anti-pollution requirements for gasoline on August 28. Gasoline prices in West Coast markets also experienced sharp increases beginning in mid-August due to problems at a number of refineries in the region.

During September, the combination of terrorist attacks in New York and Washington, D.C. and increasing concern about a flagging economy caused petroleum product prices to undergo substantial changes. Prices for the major products were on the rise at the beginning of the month as data showed tightening supplies. Further, crude oil prices rose in response to increased refiner purchases following the supply reports and OPEC's latest round of production cuts that went into effect on September 1. Robust demand for gasoline around the long Labor Day weekend, the traditional end to the summer driving season, supported rising prices in many regional markets. Refinery outages exacerbated those conditions, especially in mid-continent markets. Despite the EPA's partial waiver of anti-pollution restrictions on gasoline sold for consumption in the Chicago, Illinois and Milwaukee, Wisconsin areas, prices remained at high levels. Following the September 11 terrorist attacks, retail prices in some areas of the country spiked briefly as high as \$5 per gallon, despite the absence of disruptions to supply and distribution systems. Prices for all products plummeted across the country during the latter half of the month as concern about economic recession gripped markets. Amid a drop in overall consumer confidence, subdued demand—particularly for jet fuel—and rising inventory levels were the leading factors behind the price declines.

Following the steep declines that took place in September, prices generally showed little change in October. Besides plentiful stocks and slowing demand, growing talk of an economic recession influenced prices. In Midwestern markets, retail gasoline prices continued to fall, shaking off the effects of refinery outages and inventory shortages. According to the EIA survey of retail gasoline prices, the average price for RFG in Chicago dropped from \$1.647 on October 1 to \$1.255 on October 29. Retail prices in other regional markets also saw similarly significant decreases. Prices continued to slide during November. Already robust stocks continued to grow as demand for the major products remained subdued. In addi-



tion to the negative economic conditions that affected demand for all products, unseasonably warm temperatures further undermined distillate product prices. By the latter part of November, shrinking refining margins prompted talk of refinery run cuts at facilities on the East and Gulf coasts. Prices in the often volatile West Coast markets also retreated and quieted in November as reports continued to show healthy supplies of finished products throughout the month.

The year closed amid continuing unfavorable conditions in the general U.S. economy. In the petroleum products marketplace, high stock levels of crude oil and refined products along with enervated demand continued to influence price trends throughout regional markets in December. Refining margins continued to be thin, spurring talk of run cuts beyond a heavy slate of planned refinery turnarounds scheduled during the first quarter of 2002. Continuing unseasonably warm temperatures helped dampen demand for heating fuels, although cold and inclement weather in Europe provided the opportunity to export part of the overflow of distillates, lending a degree of support to their prices. A comparison of the difference in monthly average New York Harbor spot market prices for December 2000 and December 2001 illustrates the change in atmosphere over the year. The price for No. 2 heating oil shows the most dramatic difference: 52.4 cents in December 2001 compared with 93.8 cents in December 2000. The prices for regular gasoline and West Texas Intermediate crude oil also showed significant amounts of change. The December 2000 price for regular gasoline was 73.7 cents per gallon, while the average price in December 2001 was 51.7 cents per gallon. The crude oil price was \$28.44 per barrel in December 2000, versus the December 2001 price of \$19.39 per barrel.

## Crude Oil

Overall, the daily spot price for West Texas Intermediate (WTI) crude oil at Cushing, Oklahoma lost ground during 2001. Opening the year at \$26.72 per barrel, the price reached the annual high of \$32.21 per barrel on January 22 following reports of declining stockpiles and comments about Iraq made by then President-elect George W. Bush. The price waned during the remainder of the first quarter in spite of another round of production cuts announced by OPEC in addition to rising stock levels. While staying within a narrower range, the price moved along an unsettled course during the second quarter of the year. The price rose sharply at the beginning of April due to the implementation of the lat-

est round of OPEC production cuts and rising demand following the completion of scheduled refinery maintenance. However, growing stocks and persisting concerns about the economy tempered the increase. After experiencing a downturn in July, the price rallied moderately in August as reports showed inventories declining. In September, the price underwent significant changes in response to many factors including the terrorist attacks, lower demand for crude oil, and fears of economic recession in the U.S. and international markets. After dropping precipitously at the end of September, the price remained in the doldrums during the final quarter of the year. The faltering economy, declining demand, and robust stocks dampened the price during the last months of 2001, and led the price to its annual low of \$17.50 per barrel on November 15. Amid these unfavorable conditions, the price recouped a small amount of ground during December and closed the year at \$19.96 per barrel, \$6.76 lower than where it began 2001.

- Average prices for crude oil in 2001 decreased from 2000 levels in all sales categories. The average domestic crude oil first purchase price declined \$4.88 (18.3 percent), to \$21.84 per barrel.
- The average free-on-board (f.o.b.) cost of imported crude oil fell \$5.81 (22.1 percent), to \$20.46 per barrel. The average landed cost of foreign crude oil decreased \$5.71 (20.7 percent), to \$21.82 per barrel.
- The average refiner acquisition cost of domestic crude oil declined \$4.78 (16.4 percent), to \$24.33 per barrel. The average cost of imported crude oil to U.S. refiners fell \$5.70 (20.6 percent), to \$22.00 per barrel. The composite refiner acquisition cost of crude oil declined \$5.31 (18.8 percent), to \$22.95 per barrel.

## Petroleum Products

### *Motor Gasoline*

Of all the major products' prices, the daily spot price for regular gasoline at New York Harbor showed the most volatility during 2001. Opening at 76.4 cents per gallon, the price rose sharply during January in response to shortages of MTBE and refinery turnarounds. In February, the price declined as stock levels rose and more refining facilities returned from scheduled mainte-

nance. By the end of March and lasting through the beginning of May, fundamental factors, particularly inventory levels, caused the price to rise substantially. The price arrived at the year's high on May 4, when it reached \$1.020 per gallon. It dropped sharply towards the end of the month as supply concerns eased. The downward trend continued through the end of the second quarter as supplies grew due to increased refinery production, foreign imports, and comparatively slow demand. During the peak summer months, the price increased fitfully as market fundamentals (production rates, stock levels, and demand) alternated between promoting and deflating prices. Subdued demand and rising inventory levels amid a drop in consumer confidence led the price sharply lower at the end of September. With little to suggest any significant changes to these conditions, the price continued to fall, reaching the low for the year, 46.8 cents per gallon, on November 15. The price rebounded moderately after that point, but the same concerns and conditions continued to play a primary role in the price's activity through the end of the year. Closing at 53.6 cents per gallon, the price was nearly 23 cents lower than its starting level for 2001.

- 2001 national average gasoline prices retreated from the levels registered in 2000. The average price for retail sales of motor gasoline by refiners dropped 7.6 cents to \$1.035 per gallon, while the average wholesale price declined 7.7 cents to 88.6 cents per gallon. Including data reported by a sample of motor gasoline marketers, the national average price at company-operated retail outlets decreased 6.9 cents, to \$1.026 per gallon. The average wholesale price fell 7.8 cents, to 88.8 cents per gallon. The average dealer tank wagon (DTW) price for motor gasoline declined 7.1 cents, to 97.6 cents per gallon. The average rack price sank 7.9 cents to 86.2 cents per gallon. The average bulk sales price fell 8.5 cents to 79.6 cents per gallon. The difference between reformulated and conventional gasoline prices widened in 2001, averaging 8.4 cents at retail and 10.2 cents at wholesale. The difference between conventional and oxygenated gasoline prices also increased, averaging 9.4 cents at retail and 10.4 cents at wholesale.
- Annual averages for refiner sales of finished motor gasoline increased modestly in most sales categories. Total sales rose 1.9 million gallons per day (0.5 percent), to an average of 367.2 million gallons per day. Retail sales

climbed 1.1 million gallons per day (1.8 percent), while wholesales rose 800,000 gallons per day (0.3 percent). Rack sales accounted for 65.9 percent of refiner wholesale gasoline volumes, while DTW and bulk sales made up 22.1 percent and 12.0 percent, respectively. Sales of reformulated gasoline (RFG) constituted 32.3 percent of total motor gasoline sales, while oxygenated gasoline made up 3.2 percent of sales.

## ***No. 2 Distillate***

At New York Harbor, the daily spot price for No. 2 heating oil began 2001 in a declining mode. After opening the year at its highest level, 93.1 cents per gallon, the price trended downward during January as predictions inventories would increase and milder temperatures in the critical Northeastern region of the country were realized. The price continued its descent through late March when approaching springtime agricultural demand for distillate fuels fostered an increase. A forecast for a spate of cold weather along the East Coast spurred the price upward. By the end of the month, the price had given back most of the increase as market opinion viewed inventory levels as robust enough to meet the agricultural demand during the spring planting season. The price remained comparatively quiet through the end of the second quarter. It experienced less volatility than other products' prices, mainly as a result from stocks staying at the low end of their average range. The price rose gradually during the summer months, supported by other products' prices, as can be expected during off-season months. It fell sharply at the end of September along with the other prices in the complex. Notably, the heating oil spot price fared better than that for regular gasoline on the whole during the final quarter of the year as talk of the economy going into a recession grew. The low for the year, 46.7 cents per gallon, was struck on December 11 as unseasonably warm temperatures dampened demand for heating fuels. The price rose slightly during the final days of the year, and closed at 54.8 cents per gallon.

- 2001 yearly average No. 2 distillate prices declined from 2000 levels. The national average residential price fell 6.1 cents to \$1.250 per gallon. The average wholesale price declined 11.6 cents to 78.5 cents per gallon. The national average price at company-operated retail outlets for No. 2 diesel fuel decreased 9.3 cents to 94.3 cents per gallon, while the average No. 2 diesel

wholesale price fell 11.3 cents, to 79.1 cents per gallon. The difference between low- and high-sulfur diesel fuel prices declined in 2001, averaging 2.5 cents per gallon at retail and 2.3 cents per gallon at wholesale.

- Refiner sales of No. 2 distillate increased for the most part in 2001. Total sales rose 4.9 million gallons (3.3 percent) to 152.4 million gallons per day. No. 2 fuel oil sales increased 2.1 million gallons per day (8.0 percent) while sales of No. 2 diesel fuel rose 2.8 million gallons per day (2.3 percent). Low-sulfur diesel accounted for 84.0 percent of all diesel fuel sales and 68.4 percent of all refiner No. 2 distillate sales.

### ***Residual Fuel Oil***

2001 residual fuel oil prices fell in all sales categories. The refiner price for retail sales of low-sulfur residual fuel declined 6.6 cents to 64.2 cents per gallon. The wholesale price decreased 10.4 cents to 52.3 cents per gallon. Refiner high-sulfur residual fuel prices fell 7.4 cents, to 49.2 cents per gallon at retail and 8.4 cents to 42.8 cents per gallon at wholesale. Including data reported by a sample of residual fuel oil marketers, the average low-sulfur price dropped 6.3 cents to 62.0 cents per gallon at retail and 9.6 cents to 54.2 cents per gallon at wholesale. The average price for high-sulfur residual fuel decreased 7.8 cents to 49.8 cents per gallon at retail and 8.5 cents to 43.8 cents per gallon at wholesale.

Average refiner residual fuel oil sales rose slightly in 2001. Total refiner sales increased 1.5 million gallons per day (6.4 percent), to an average of 25.1 million gallons per day. Low-sulfur residual fuel oil sales climbed 800,000 gallons per day (9.8 percent), while high-sulfur residual fuel oil rose 700,000 gallons per day (4.5 percent).

### ***Other Products***

- Generally, average prices for products included in this section fell in 2001. Refiner propane prices declined 9.7 cents per gallon at retail and 5.5 cents at wholesale. Including a sample of propane marketers, the average residential propane price rose 11.2 cents to \$1.285 per gallon, while the average wholesale price decreased 4.7 cents to 55.6 cents per gallon. Refiner prices for kerosene-type jet fuel, kerosene, No. 1 distillate, and No. 4 distillate declined at both levels. The lone exception to this trend was aviation gasoline, whose prices rose at retail but fell at wholesale.
- Trends in refiner sales of these products were varied in 2001. Propane sales rose at both levels while sales of kerosene declined at retail and wholesale. Sales of kerosene-type jet fuel, No. 1 and No. 4 distillates increased at retail but fell at wholesale. Sales of aviation gasoline did just the opposite, declining at retail and rising at wholesale.

